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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,333	07/23/2004	Naoto Ohta	256241US0PCT	9835
22850 7590 12/27/2007 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER BEST, ZACHARY P	
			ART UNIT 4191	PAPER NUMBER
			NOTIFICATION DATE 12/27/2007	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/501,333	<b>Applicant(s)</b> OHTA ET AL.	
	<b>Examiner</b> ZACHARY BEST	<b>Art Unit</b> 4191	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 July 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 July 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>07/23/2004, 11/15/2004</u> .                                  | 6) <input type="checkbox"/> Other: _____                          |

**NEGATIVE ELECTRODE MATERIAL FOR  
LITHIUM ION SECONDARY BATTERY**

Examiner: Z. Best    S.N. 10/501,333    Art Unit: 4191    December 20, 2007

***Drawings***

1.     The drawings are objected to because column 4 is not labeled in conformity with the remaining columns. An acceptable amendment would be to label the column as “mesopore volume (cc/g).

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

2. The abstract of the disclosure is objected to because it exceeds the maximum 150 word limit. Correction is required. See MPEP § 608.01(b).
3. Examiner notes the terms “Hybridization System” and “Mechanofusion System” (pg. 10). If the terms denote trademarked products, the terms should be capitalized wherever they appear and be accompanied with generic terminology. If the terms denote generic products available from the corresponding companies, the terms should not be capitalized as proper nouns. Correction may be required.

### ***Claim Objections***

4. Claim 3 is objected to because of the following informalities: the term “3l/min” should have a space between the number 3 and the abbreviation for liter due to possible confusion from a lower-case L appearing similar to the number 1 (e.g., 1, l). Appropriate correction is required.
5. Claim 7 is objected to because of the following informalities: the term "graphite powder" should be preceded by the term "coated" in all instances because Claim 6 claims a “mixture of two different kind of coated graphite powders.” Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 8-10 recite the limitation "the graphite powder." There is insufficient antecedent basis for this limitation in the claim as Claim 1 does not refer to an uncoated graphite powder. For purposes of compact prosecution Examiner has read all instances of "the graphite powder" in Claims 8-10 as being the precursor core material to the coated graphite powder.

***Claim Rejections - 35 USC § 102 / 103***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-5, 8-12 rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Yoon et al. (U.S. Patent No. 6,596,437 B2).

Yoon et al. teach an anode material for a lithium ion secondary battery comprising a coated graphite powder coated with a carbonized material of thermoplastic resin as a raw material (see claim 1) with an average particle size between 10-50  $\mu\text{m}$  (see col. 5, lines 22-23).

It is the Examiner's position that the other properties of the anode material of Yoon et al., such as the mesopore volume, rate of oxidation loss, specific surface area, H/C value, L(112) spacing, accumulative pore volume difference, and change in mesopore volume due to coating, are inherent, given that the anode material of Yoon et al. and the present application have similar process steps, the peak strength ratios ( $I_{360}/I_{580}$ ), interlayer spacings  $d_{002}$ , and precursor materials. A reference which is silent about a claimed invention's features is inherently anticipatory if the missing feature is necessarily present in that which is described in the reference. Inherency is not established by probabilities or possibilities. *In re Robertson*, 49 USPQ2d 1949 (1999).

Alternatively, it would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the mesopore volume, cumulative pore volume difference, and change in mesopore volume due to coating to by changing the thickness of the coating in order to resist a lowered battery capacity due to electrolyte penetration (see Yoon et al., col. 5, lines 43-56).

Regarding Claim 2, Yoon et al. teach the peak strength ratio ( $I_{360}/I_{580}$ ) is 0.4 or less (see col. 5, lines 39-42).

Regarding Claim 8, Yoon et al. teach the interlayer spacing  $d_{002}$  of the core graphite between 0.335-0.342 nm (see col. 5, lines 37-40).

Regarding Claim 11, Yoon et al. teach the coated graphite powder is coated with carbonized material of thermoplastic resin of a carbonization yield of 10-20% (see Example 1 and Example 3), and Yoon et al. teach the ratio of thermoplastic to graphite powder (see Example 1 and Example 3).

Regarding Claim 12, Yoon et al. teach the thermoplastic resin may be polyvinyl alcohol (see claim 4).

11. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoon et al. as applied to Claims 1-5, 8-12 above, and in further view of Aihara et al. (JP 2001-196097).

Yoon et al. teach an anode material for a lithium ion secondary battery as discussed in par. 10 above. However, Yoon et al. fail to disclose a coated graphite powder as a mixture of two different kind of coated graphite powders in average particle size from each other.

Aihara et al. teach an anode material for a lithium ion secondary battery comprising graphite powder (section 0122) where the graphite powder is a mixture of two different kinds of graphite powders different in average particle size from each other (section 0123).

Aihara et al. further teach that the ratio of average particle sizes is 0.3 (section 0123).

Therefore, one graphite powder having an average particle size of 25  $\mu\text{m}$  will be mixed with

another graphite powder having an average particle size of approximately 8  $\mu\text{m}$ . The mixture of two different kinds of graphite powders as taught by Aihara et al. would be advantageous because of increased discharge capacity and discharge cycle properties (section 0028). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make an anode material for a lithium ion secondary battery of Yoon et al. with the mixture of two different kinds of graphite powders different in average particle size from each other because Aihara et al teach resultant increase in discharge capacity and discharge cycle properties.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zachary Best whose telephone number is (571)270-3963. The examiner can normally be reached on Monday to Thursday, 7:30 - 5:00 (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on (571) 272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Zpb

/Dah-Wei D. Yuan/  
Supervisory Patent Examiner, Art Unit 4191